TUSC-1042

rack mounted distribution system for up to 80 screens

smartCast

user guide

for more information visit our website, or talk to one of our technical team

tel: +44 (0) 1306 628264, www.smart-e.co.uk

Smart-e

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Introducing SmartCast Cat5 AV Splitter/Extender

What's in the box?

Thank you for buying the Smart-e SmartCast Cat5 AV splitter/Extender. Depending on the configuration of your system various quantities of the parts below may be included in your shipment.
If any of the accessories listed below are missing please contact the Smart-e dealer you purchased the products from or contact Smart-e customer support at:

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Included with all TuscRack orders.

Item	Description	Tusc-1042
Rack Unit	19" rack for up to 16 TX or RX Eurocards	YES
Power Supply	DC24v 150W Power Supply	YES
High Power PSU	DC24v 200W Power Supply	Optional
Redundant PSU	Additional PSU to match first for redundancy	Optional
Mains Cable	IEC Mains cable	YES

If you ordered a SmartCast Transmitter version with External Receivers:

Eurocard Transmitter:

Item	Description	SCX-TX550e
Transmitter Unit	Cat5 One input to Five Output Transmitter Unit	YES

External Receivers:

Item	Description	Rx111	Rx211	RX212
Multi-format Receiver Unit	Multi-format Cat5 Receiver with stereo audio	YES	YES	NO
Dual Screen Receiver Unit	Dual Screen Cat 5 Receiver with Stereo Audio	NO	NO	YES

If you ordered a SmartLynx Receiver version with External Transmitters

Item	Description	SLX-RX100e	SLX-RX111
Multi-format Receiver Unit	Multi-format Cat5 Receiver with stereo audio	YES	YES

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Introducing TUSCRACK 19" Rack Solution

What is TuscRack?

The TuscRack (The Universal System Chassis Rack) is a 19" rack system designed to house Eurocard versions of Smart-e transmitter and receiver products

Why is TuscRack necessary?

Sometimes there is a need for either transmitter (s) or receivers or both to be mounted in a centralised location. The TUSC system allows this with all connections emanating or terminating in a single neat location that itself is fully mountable in any standard 19" racks

How does TUSCRack work?

The TUSCRack houses up to 16 transmitter or receiver eurocards, in the case of transmitter there are five RJ45 outputs on the front of each card for routing video (data), audio and control signals over Cat5 to external remote receivers. In the Eurocard receivers there is a single RJ45 for receiving Video (data) & audio. The connectors on the rear of the rack allow for use as either input or output of video and audio and in the case of using Eurocard transmitters also provide the facility for cascading inputs to further eurocards in the rack

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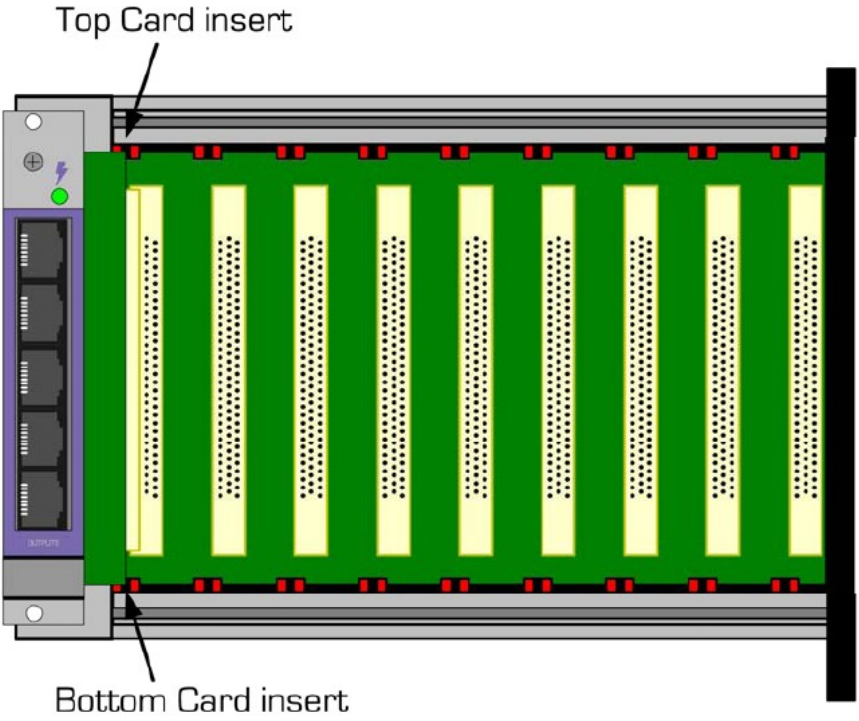
1. Inserting Eurocards into the TUSC Rack

1.1 Holding the Eurocard with the handle at the bottom and LED at the top slide the Eurocard along the card guides within the rack.

1.2 Push the card in until the 96 pin plug on the card is fully inserted into the 96 pin socket inside the rear of the rack.

1.3 When the card is in place use the screws located at the top and bottom to fix the card



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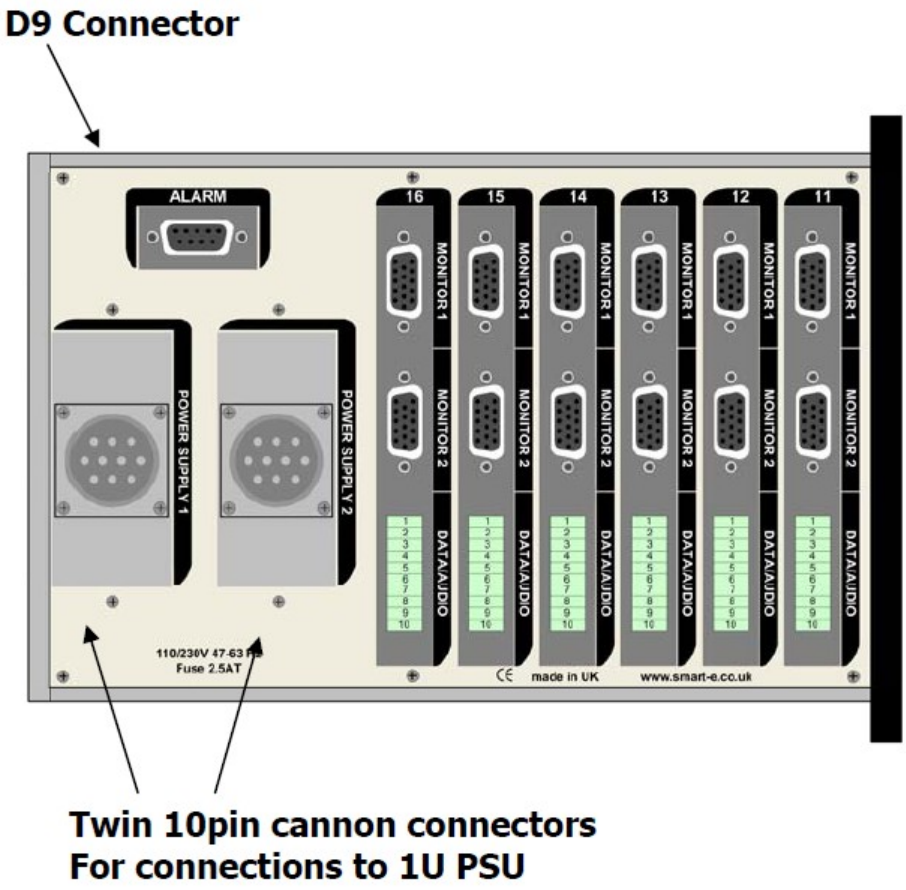
2. Attaching the mains leads and alarm cable

2.1 Connect the 10 pin connector designated PSU1 to the 10 pin connector marked PSU1 on the 1U power supply and repeat for PSU2.

2.2 Attach the alarm socket (see below) to input on your bell or light based relay system to be warned if one of the power supplies fails.



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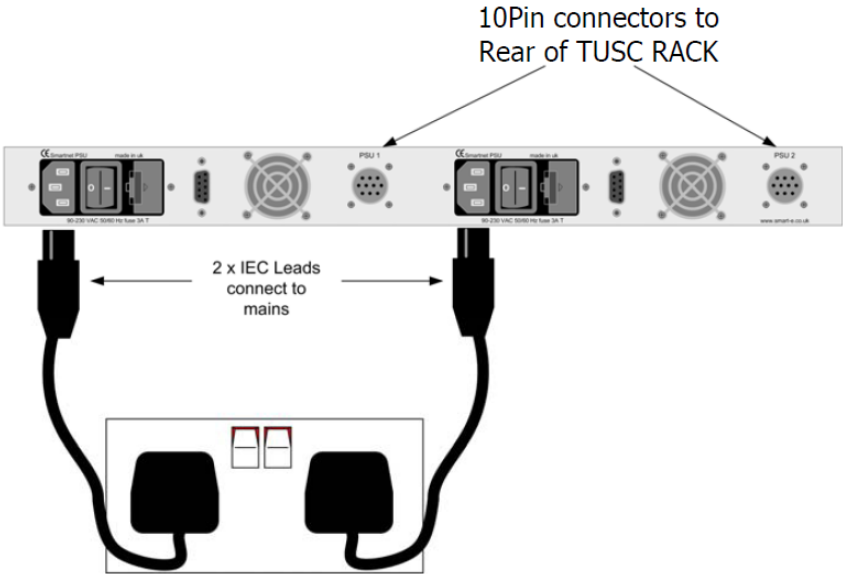
3. Connecting external power supply unit (PSU) SNX-PSU

3.1 Each SNX-PSU has two connections to the TUSCRack as described on the previous page (labelled PSU1 & PSU2)

3.2 To power the SNX-PSU plug an IEC mains lead into each of the inlets on the SNX-PSU. Either PSU connection will power the complete TUSCRack

3.3 Turning on both of the power supplies will give a dual redundant system, providing a back up in the unlikely event of a failure.



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SmartCast-SCX-TX550e

Transmitter Eurocard

The SCX-TX550e allows for the transmission of UXGA , RGsB, YUV, Y/C or CVBS with stereo audio and an RS232 or Infra Red control signal along five Cat5 UTP cables to five displays.
The unit also has a cascade ability whereby a single source may be distributed to up to 80 screens (160 with dual screen receivers)

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Introducing SmartCast cat5 AV Splitter/ Extender

What is SmartCast?

The SmartCast systems are a combination of high quality video and audio switches, transmitter and receiver devices designed to transmit high resolution computer video and/or audio signals over Cat5 wire. AV stands for Audio Visual and includes such signal formats as Broadcast Video (TV video signal), Computer Video (VGA, SVGA, SXGA and etc. signals) and various formats of Audio signals.

Why is SmartCast necessary?

Sometimes you may have numerous source devices to be displayable upon screens. Or that AV signals need to be transmitted over distances greater than commonly specified product limitations of 5m. In this case several choices are available, but most are expensive and bulky, which is in some cases simply not practical, due to space limitations in the conduits.
The SmartCast allows the transmission of AV signals over a standard Cat5 UTP cable over distances of up to 300m with full IR or RS232 control options. The actual distance is a function of the signal resolution and cable quality. The following is a rough guide to distance and resolution:

Cat5 Cable Length	Maximum Recommended Resolution
200m	UXGA (1600x1200)
200m	1080p (1920x1080)
300m	SXGA (1280x1024)

How does SmartCast work?

The Smart-e SmartCast systems are switch/transmitter and receiver pairs designed to extend video, stereo audio and IR/RS232 signals over (UTP & STP) unshielded & shielded twisted pair category 5 (Cat5) cabling. They are supplied with a UK power supply and consist of: a transmitter with a video input (connectors vary by model), an audio input and a Cat5 output and; a receiver with a cat5 input and corresponding outputs. Certain models are also supplied with looping cat5 outputs, local outputs and/or IR or RS232 connections.

The extended signals depend on the model but supported signals are UXGA, CVBS, YPbPr, Y/C, and RGsB analogue format and Stereo Audio. The basic concept behind this product is the ability to encode and decode analogue signal combined with precise line equalization and compensation.

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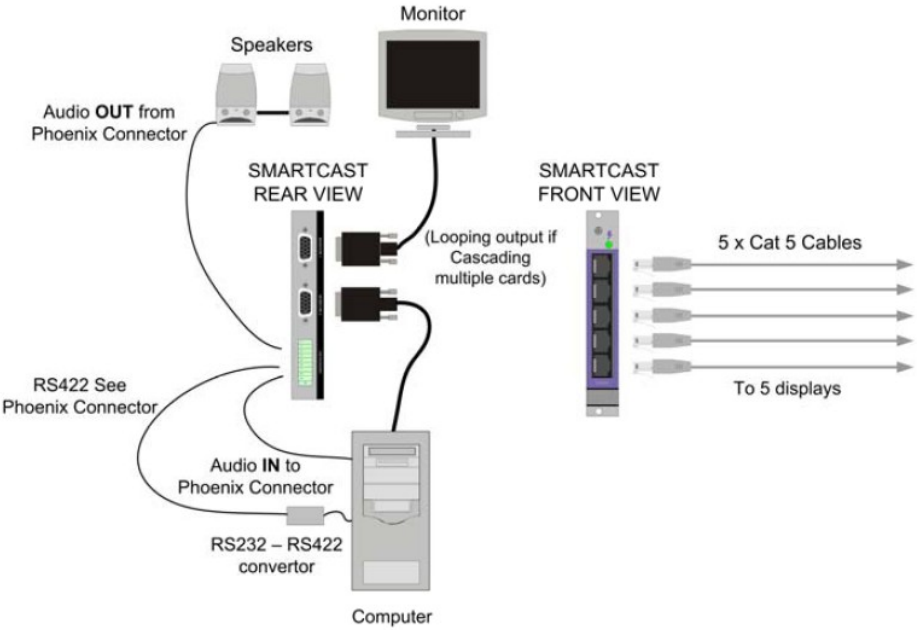
1. Preparing for installation

Start installation process by insuring that all video displays and audio devices are compatible with the computers being used. This is accomplished by connecting the devices directly to the computer and checking that the devices operate as desired without the SmartCast system.
Install CAT-5 wiring between desired locations. In order to minimize system operation difficulties, avoid routing the system cables near fluorescent lights, air conditioners, or machines that may create electrical noise.



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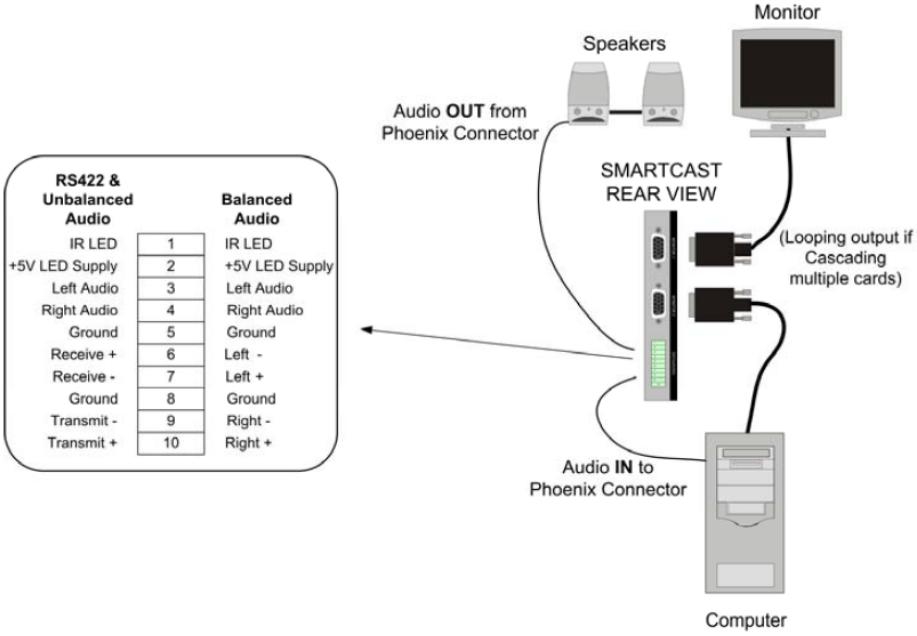
2. Connect Transmitter to the signal source

2.1 Connect the output of the computer video card to the computer video input (Monitor2) of the transmitter using HD15 male to male cable.

2.2 Connect the local monitor cable to the computer video loop output of the transmitter (Monitor 1).

2.3 Connect the output of the computer audio card to the audio input of the transmitter (Phoenix) using left and right audio cables.


RS422 & Unbalanced Audio
Balanced Audio
IR LED 1 IR LED
+5V LED Supply 2 +5V LED Supply
Left Audio 3 Left Audio
Right Audio 4 Right Audio
Ground 5 Ground
Receive + 6 Left -
Receive - 7 Left +
Ground 8 Ground
Transmit - 9 Right -
Transmit + 10 Right +
Monitor
Speakers
Audio OUT from Phoenix Connector
SMARTCAST REAR VIEW
(Looping output if Cascading multiple cards)
Audio IN to Phoenix Connector
Computer

2.4 Connect the local speakers to the same audio input connector [Phoenix]. Wired in Series.

2.5 Multiple units can be linked together by connecting the loop output of the video [Monitor 1] and wiring the audio ports [Phoenix] in series to additional transmitters.

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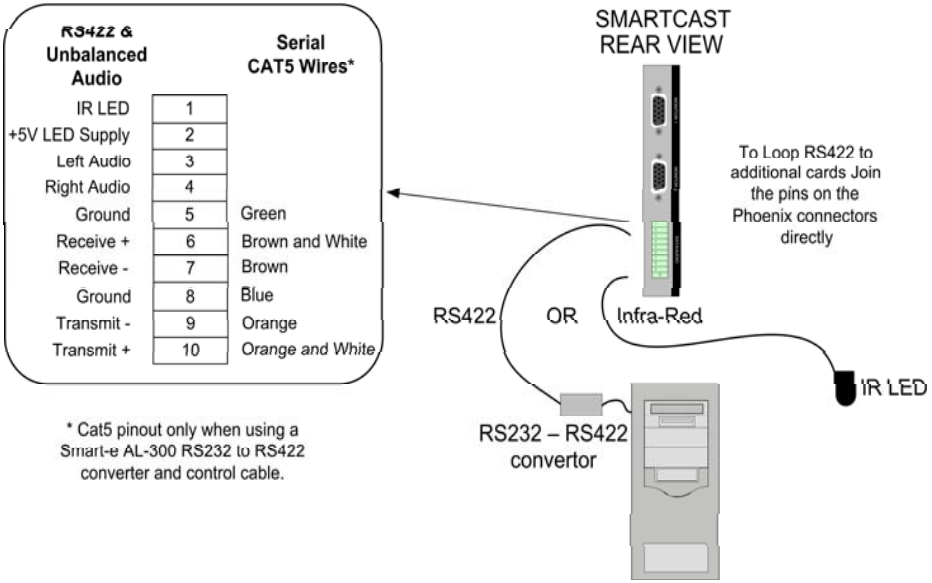
3. RS422 or infra red connectivity for the scx-tx550e

RS 422

3.1 Using the RS232-422 convertor and adapter cable provided, connect to an available serial port on the pc / control system.

3.2 Then connect the relevant pins of the adapter cable into the connect socket on the Phoenix connector (see below)

3.3 Additional transmitter units can be linked together by looping the phoenix connectors in series.


RS422 & Unbalanced Audio
Serial CAT5 Wires*
IR LED 1
+5V LED Supply 2
Left Audio 3
Right Audio 4
Ground 5 Green
Receive + 6 Brown and White
Receive - 7 Brown
Ground 8 Blue
Transmit - 9 Orange
Transmit + 10 Orange and White
* Cat5 pinout only when using a Smart-e AL-300 RS232 to RS422 converter and control cable.
SMARTCAST REAR VIEW
To Loop RS422 to additional cards Join the pins on the Phoenix connectors directly
RS422
OR
Infra-Red
IR LED
RS232 – RS422 convertor

Infra-red

3.4 If you are not using RS422 and would like to use infra-red for remote control of the source device then an IR Led can be connected to the relevant pins on the phoenix connector (see above).

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4. System power up

4.1 Turn the system on by plugging in the power adapter to the SmartCast, if they are not yet connected.
4.2 Power up your computer.
4.3 Observe both transmitter and receiver power LED are ON, and computer is fully booted up.
4.4 Observe monitors at transmitter and receiver end displaying the same data.

Using cable compensation adjustment on the back of the receiver unit adjust the image to best quality. This adjustment equalises for various cable lengths.

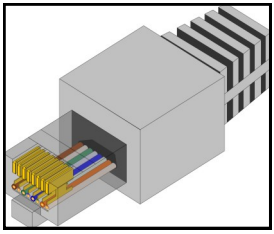
5. Preparing and connecting system - Cat5e cable

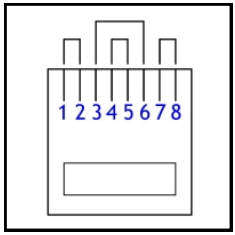
The SmartLynx utilises category 5 (CAT 5), unshielded twisted pair (UTP) cable to transport signal between transmitter and receiver.

CAT 5 cable is more desirable than coaxial cable due to its low cost and ease of installation. This cable is used for LAN applications and is found in abundance, already installed, in many buildings . The category 5 is a standard which establishes minimum requirements for telecommunications cabling within a commercial building. The standard covers various aspects of wiring including telecommunications outlets.

Following is the wiring standard for terminating CAT 5 cable using RJ 45 connector:

Pair 1	Pins 1 & 2
Pair 2	Pins 3 & 6
Pair 3	Pins 4 & 5
Pair 4	Pins 7 & 8





Connectors:	RJ-45
Capacitance:	14 pf/ft (46.2 pf/m)
Conductor Gauge:	24 AWG
Impedance:	100 +/- 15 ohms
	4 - Pair

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Technical Information - TX550e

Item	SLX-TX550e
Video Input	
Video Signals	UXGA, Y/C, YUV, RGsB, CVBS
Video Resolution	1600 x 1200
Impedance	75Ohm
Connector	HD15 socket
Audio Input	
Audio signals	stereo audio
Impedance	10k Ohm
Connector	10 pin phoenix connector
Video Output	
Signal Type	balanced 1v pk-pk
Impedance	100 Ohm
Connector	RJ45
Audio Output	
Signal Type	Stereo balanced /unbalanced
Connector	RJ45
IR Output	
Signal Type	30 - 450kHz
Connector	10 pin phoenix connector
RS422(RS232)	
Signal Type	19200, 300bps TXD, RXD
Connector	10 pin phoenix connector
Physical	
Dimensions	108 x 43 x 310mm
Weight	0.66kg
Power	
Requirements	4 Watts

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SmartCast - SLX-TX120E

Transmitter Eurocard

The SLX-TX120e allows for the transmission of two separate UXGA,YUV,Y/C or CVBS with stereo audio along two Cat 5 UTP cables to two separate displays.

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Introducing SmartLynx 120 dual cat5 AV Extender

What is SmartLynx 120?

The SmartLynx is a combination of transmitter and receiver devices designed to transmit high resolution computer video and/or audio signal over Cat5 wire. AV stands for Audio Visual and includes such signal formats as Broadcast Video (TV video signal), Computer Video (VGA, SVGA, SXGA and etc. signals) and various formats of Audio signals.

Why is SmartLynx 120 necessary?

Sometimes AV signals need to be transmitted over distances greater than commonly specified product limitations of 5m. In this case several choices are available, but most are expensive and bulky, which is in some cases simply not practical, due to space limitations in the conduits.
The SmartLynx allows the transmission of AV signals over a standard Cat5 UTP cable over distances of up to 300m. The actual distance is a function of the signal resolution and cable quality. The following is a rough guide to distance and resolution:

How does SmartLynx 120 work?

The Smart-e SmartLynx 120 is designed to transmit desktop computer video and stereo audio signals over (UTP) unshielded twisted pair category 5 (Cat5) cabling. They are supplied with a UK power supply and consists of 2 transmitters with two inputs and two outputs .
The transmitted signals depends on the model but supported signals are CVBS, YUV, Y/C, RGsB analogue format and Stereo Audio. The basic concept behind this product is the ability to encode and decode analogue signal combined with precise line equalization and compensation.

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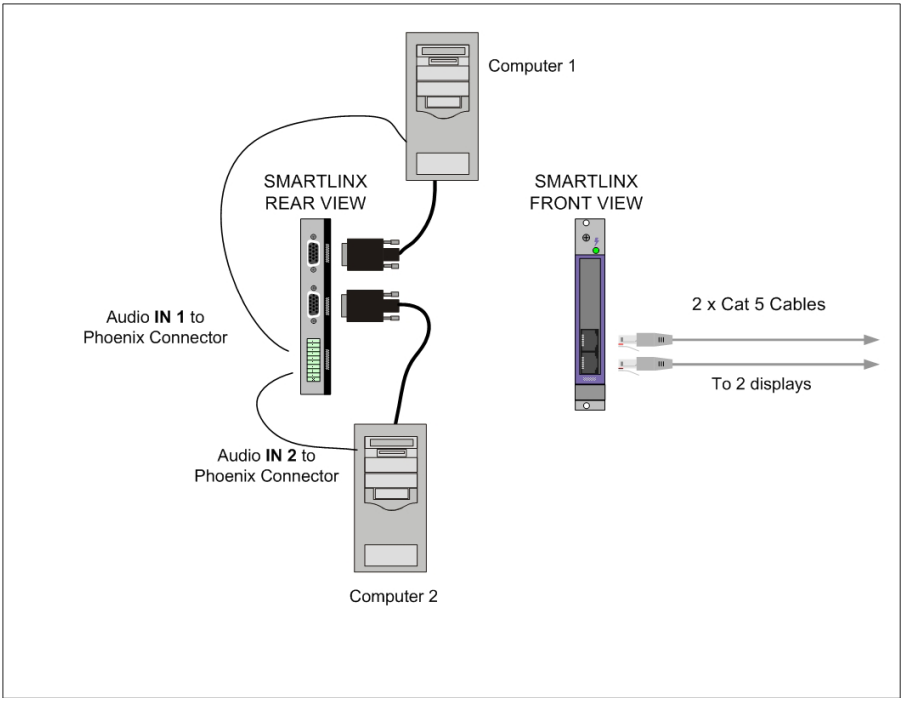
1. Preparing for installation

Start installation process by insuring that all video displays and audio devices are compatible with the computers being used. This is accomplished by connecting the devices directly to the computer and checking that the devices operate as desired without the Smartlynx system.

Install CAT-5 wiring between desired locations. In order to minimize system operation difficulties, avoid routing the system cables near fluorescent lights, air conditioners, or machines that may create electrical noise.



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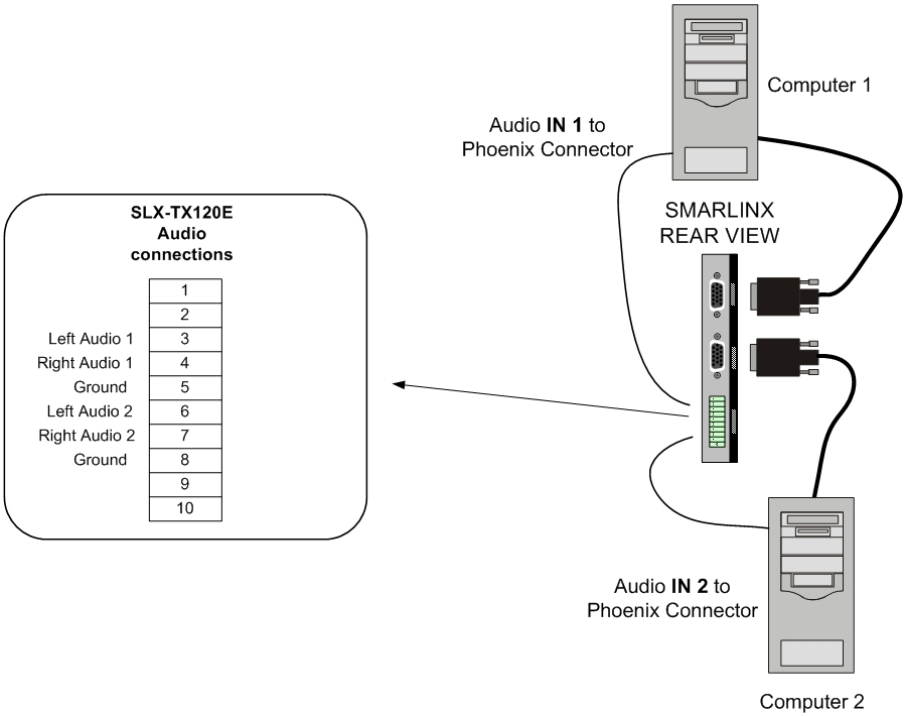
Connect Transmitter to the signal source

2.1 Connect the outputs of the computer video cards to the computer video inputs of the transmitters using HD15 male to male cables.

2.2 The uppermost video input corresponds with the uppermost cat 5 output.

2.3 Connect the output of the computer audio cards to the audio inputs of the transmitters (Phoenix) using left and right audio cables.



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Technical Information
SLX - TX120e

Item	SLX-TX120e
Video Input	
Video Signals	2x UXGA, Y/C, YUV, RGsB, CVBS
Video Resolution	1600 x 1200
Impedance	75Ohm
Connector	2 x HD15 socket
Audio Input	
Audio signals	2 x stereo audio
Impedance	10k Ohm
Video Output	
Signal Type	2 x balanced 1v pk-pk
Impedance	100 Ohm
Connector	RJ45
Audio Output	
Signal Type	2 x Stereo unbalanced
Connector	2 x RJ45
IR Output	None
Signal Type	N/A
Connector	N/A
RS422(RS232)	None
Signal Type	N/A
Connector	N/A
Physical	
Dimensions	108 x 18 x 310mm
Weight	0.2kg
Power	
Requirements	4 Watts

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SmartLynx - SLX-RX100e
Receiver Eurocard

The SLX-RX100e allows for the reception of UXGA, RGsB, YUV, Y/C, CVBS and stereo audio, when broadcasted along a single Cat5 UTP cable from a SmartCast transmitter.
The unit then distributes the received signal to a display via a HD15 connection and to speakers via a 3.5mm mini jack.

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Introducing SmartLynx Cat5 AV Receiver

What is SLX-RX100E?

The SmartLynx SLX-RX100E is a receiver device designed to accept high resolution computer video and/or audio signal over Cat5 wire from a Smart-e transmitter. AV stands for Audio Visual and includes such signal formats as Broadcast Video (TV video signal), Computer Video (VGA, SVGA, SXGA and etc. signals) and various formats of Audio signals.

Why is SLX-RX100E necessary?

The SLX-RX100E was designed for applications where there is a need to have all receivers in a central location for distribution to similarly situated screens. The rack mounting facility allows for a very neat and compact solution to housing numerous receivers in a standard 19" rack.
The Smart-e products allow the transmission of AV signals over a standard Cat5 UTP cable over distances of up to 300m which the SLX-RX100E is able to receive and distribute to displays and speakers.
The actual distance is a function of the signal resolution and cable quality. The following is a rough guide to distance and resolution:

Cat5 Cable Length	Maximum Recommended Resolution
200m	UXGA (1600x1200)
200m	1080p (1920x1080)
300m	SXGA (1280x1024)

How does SLX-RX100E work?

The Smart-e SLX-RX100E is receives desktop video and stereo audio signals over (UTP) unshielded twisted pair category 5 (Cat5) cabling.

The received signals depends on what is inputted at the transmitter end but supported signals are CVBS, YUV, Y/C, RGsB analogue format and Stereo Audio. The basic concept behind this product is the ability to decode analogue signals combined with precise line equalization and compensation.

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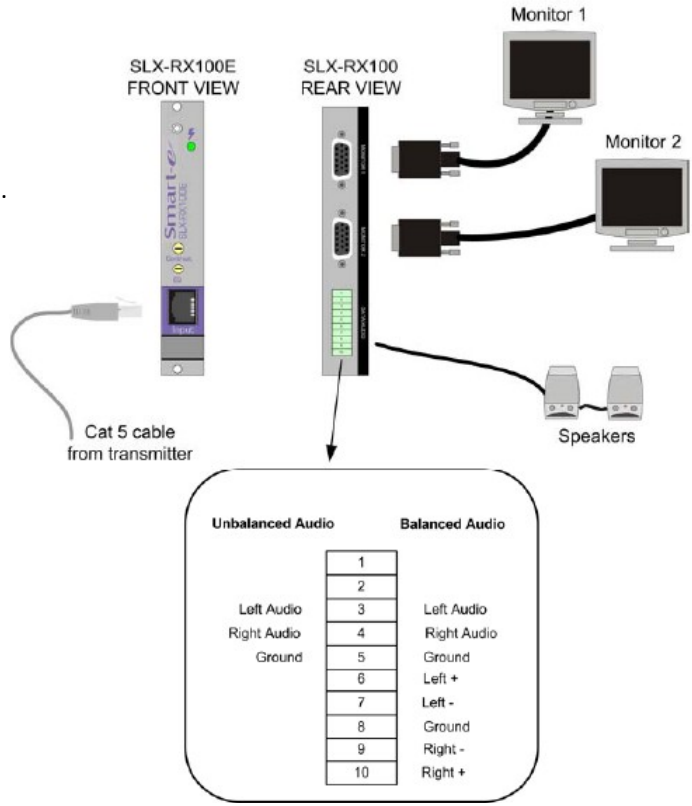
1. Connecting SLX-RX100 to the display device

1.1 Making sure that the Cat 5 cable is connected to one of the SCXTX550 transmitter outputs, connect the cable to the RJ45 socket on the receiver unit.
1.2 If the cable connection is correct the power LED on the front of the receiver should illuminate (power is sent up the Cat 5 cable).
1.3 Connect the speakers or audio input on the display to the audio output on the receiver, using a 3.5mm jack plug.
1.4 Connect the display to the video output on the receiver using high quality multi-coaxial cable.



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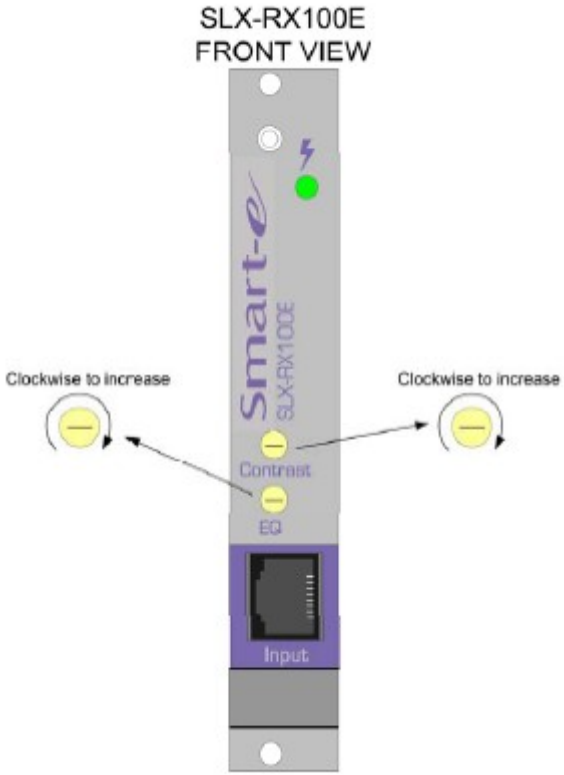
2. Adjusting Equalisation and Contrast

2.1 To Adjust equalization the 'pot' labelled as EQ may be rotated clockwise: start by turning the 'pot' completely ANTI Clockwise and then slowly turn clockwise until equalization is correct, as cable length increases the 'pot' will need to be turned further clockwise.

2.2 To Adjust Contrast (Gain) as with equalization begin by turning the 'pot' completely ANTI clockwise and slowly turn the 'pot' clockwise until the desired image contrast (gain) is displayed.



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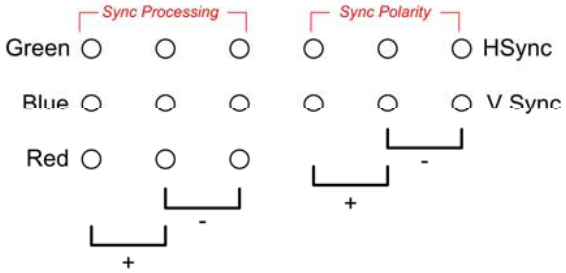
3. Sync Processing & Polarity

Sync Processing

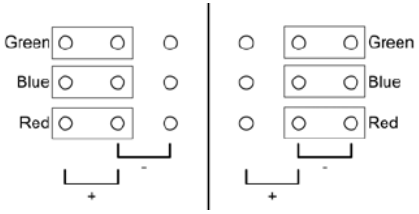
For VGA applications the Transmitter adds the Horizontal and Vertical sync pulses to the Blue and Red channels. Since the unit has been designed for use with other types of video the Receiver provides the ability to both pass the Green, Blue and Red channels transparently or process them to remove the Sync Pulses.

Viewed from top of board [where the pots reside]



1) To pass video transparently the jumpers must be set in the **+** position.
2) To process the video and remove the sync pulses the jumpers must be set in the **-** position
3) To pass any type of video other than VGA **ALL** the jumpers must be in the **-** position.

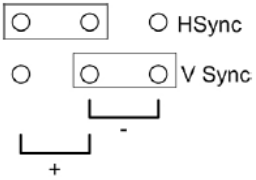
In the example the left diagram is set to output VGA and the right diagram to output component (YPbPr)



Sync Polarity

Using the sync Polarity section of the jumper pins it is possible to set the polarity of the vertical and horizontal sync pulses.
1) To make the sync pulses positive going the jumpers should be set in the + position.
2) To make the sync pulses negative going the jumpers must be set in the – position.

In the example opposite the horizontal sync is positive going and the vertical sync is negative going.



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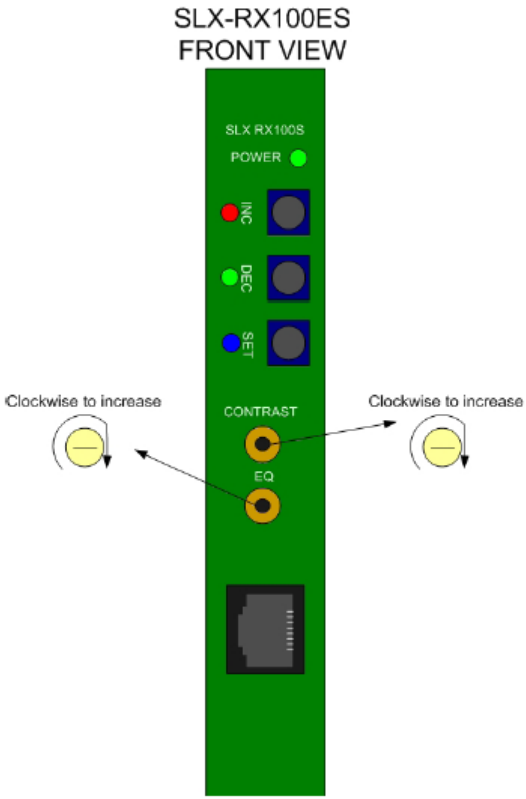
The SLX-RX100ES connects and operates in an identical way to the SLXRX100E with the exception of the built-in Skew error compensation

Adjusting Equalisation and Contrast

2.1 To Adjust equalization the 'pot' labelled as EQ may be rotated clockwise: start by turning the 'pot' completely ANTI Clockwise and then slowly turn clockwise until equalization is correct, as cable length increases the 'pot' will need to be turned further clockwise.

2.2 To Adjust Contrast (Gain) as with equalization begin by turning the 'pot' completely ANTI clockwise and slowly turn the 'pot' clockwise until the desired image contrast (gain) is displayed.



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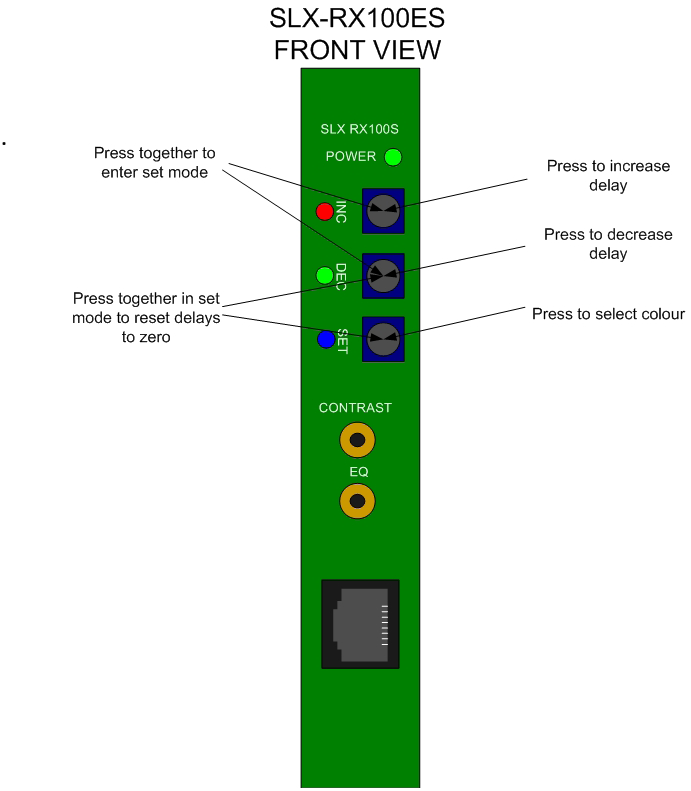
Skew error compensation

The SLX-RX100ES is identical to the SLX-RX100E except that it has built-in delay lines to compensate for skew error in longer cable lengths. Each video colour can be delayed up to 32mS which can be adjusted and set using the 3 buttons on the front panel.

1. Press buttons “inc and dec” together to enter the setting mode.
2. Press button “set” to select the colour to be delayed i.e. red/green/blue.
3. Press the “inc” button to increase and “dec” button to adjust the delay
4. Press buttons “inc and dec” together to save the settings.
5. Pressing buttons “dec and set” together will reset all the delays to zero.

Note.

Although all 3 colours can be delayed it is only usually necessary to delay 2 of the colours to achieve skew error compensation.



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Technical Information - SLX-RX100e

Item	SLX-RX100e
Range	
AV over Cat 5 UTP	300m
Input	
Video	Balanced 1v pk-pk
Resolution	Up to 1600 x 1200
Audio	Balanced
Connector	RJ45
Video output	
Signal Type	UXGA, RGBHV, RGsB, YUV, Y/C, CVBS
Resolution	Up to 1600 x 1200
Connector	HD15, Female x 2
Audio Output	
Signal Type	Stereo unbalanced or balanced
Connector	10 pin Phoenix connector
Physical	
Dimensions	95 x 80 x 23mm
Weight	0.3kg
Power	
Requirements	2 Watts line powered

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Receiver Options

Smartlynx Receiver Options

There are a number of different receiver options available to accompany the SmartCast Tusc Rack, please check the model number and relevant page number reference below.

SLX-RX100

UXGA, RGsB, YPrPb, Y/C, CVBS and Stereo Audio

For Instructions on Installation of the SLX-RX100 see page..... 10

SLX-RX111

UXGA, RGBS, RGsB, YPrPb, Y/C, CVBS, Stereo Audio and RS232 or Infra-Red control option.

For Instructions on Installation of the SLX-RX111 see page.....14

SLX-RX211

Same as SLX-RX111 but with greater range and skew compensation.

For Instructions on Installation of the SLX-RX211 see page.....18

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Receiver Options

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SLX-RX212/D

Dual Screen Output, UXGA, RGsB, YPrPb, Y/C, CVBS and Stereo Audio, with RS232 or Infra-Red control option. SLX-RX212D can be cascaded.

For Instructions on Installation of the SLX-RX212 see page..... 24

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SLX-RX100

The SLX-RX100 allows for the reception of UXGA, RGsB, YPrPb, YUV, Y/C, CVBS and stereo audio, when broadcasted along a single Cat5 UTP cable from a Smart-e transmitter or matrix.

The unit then distributes the received signal to a display via a HD15 connection and to speakers via a 3.5mm mini jack.

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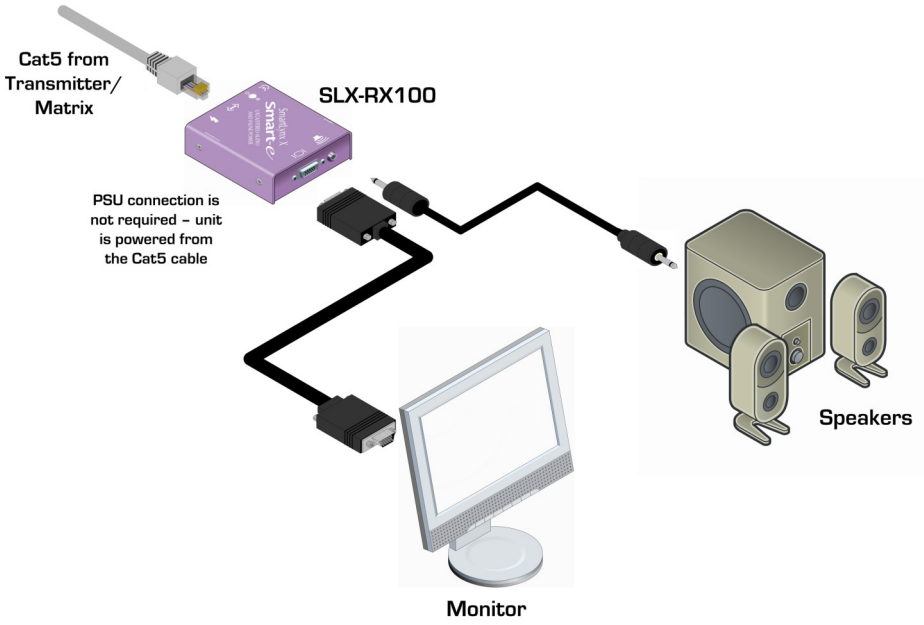
1. Connecting SLX-RX100 to the display device

1.1 Making sure that the Cat 5 cable is connected to the matrix output, connect the cable to the RJ45 socket on the receiver unit.

1.2 If the cable connection is correct the power LED on the front of the receiver should illuminate (power is sent up the Cat 5 cable).

1.3 Connect the display to relevant connector on the receiver (see diagram below) using the appropriate cable.


Cat5 from Transmitter/ Matrix
SLX-RX100
PSU connection is not required – unit is powered from the Cat5 cable
Speakers
Monitor

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2. Setting the cable length dials

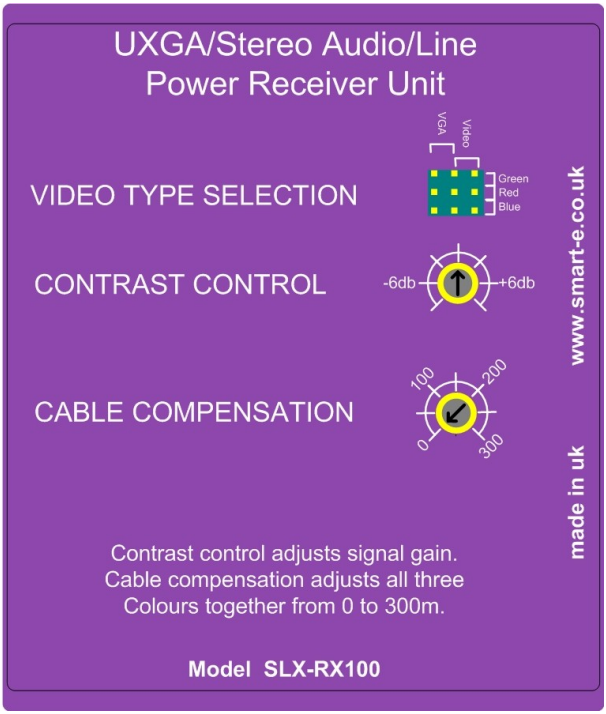
The Receiver unit is preset for approximately 50m which is sufficiently accurate for most applications. However if the image does not look sharp enough then follow the instructions below

2.1 Whilst looking at an image on the display, preferably a long horizontal bar, adjust the CABLE COMPENSATION dial.

2.2 Looking at the right-hand edge of the bar you will see the image change. A highlighting bright edge means over compensation, whilst a blurred dark edge means under compensation.

2.3 Adjust the dial until both effect are neutralized.

The Contrast control dial is factory pre-set and usually needs no adjustment.



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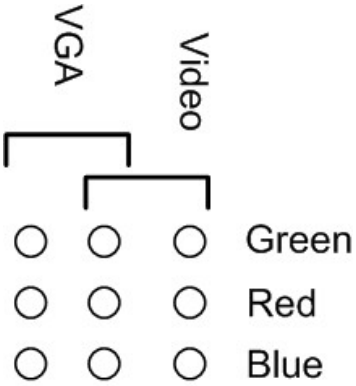
3. Sync Processing

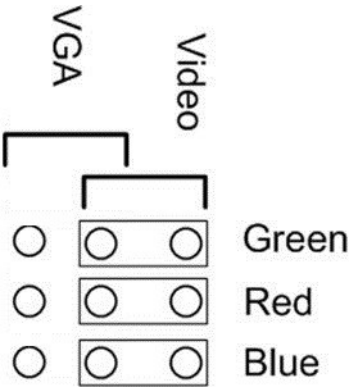
For VGA applications the Transmitter adds the Horizontal and Vertical Sync Pulses to the Blue and Red channels. However, since the unit has been designed for use with other types of video the Receiver provides the ability to pass both the Red and Blue channels transparently or process them to remove the Sync Pulses.



3.1 For composite, y/c and YP_bP_r (component) the jumpers must be set in the Video position.

3.2 For VGA the jumpers must be set in the VGA position.

The example below shows the jumpers set for composite, s-video or component



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SLX-RX111

The SLX-RX111 allows for the Short Range reception of UXGA, RGsB, RGBS, YPrPb, YUV and Long Range reception of Y/C, CVBS, Stereo Audio, and Infra-Red or RS232 control signals, when broadcasted along a single Cat5 UTP cable from a Smart -e transmitter or matrix.

The signals are received along the Cat5 from the transmitter and then distributed to the display and control equipment via the appropriate connection and to speakers via a 3.5 mm mini jack.

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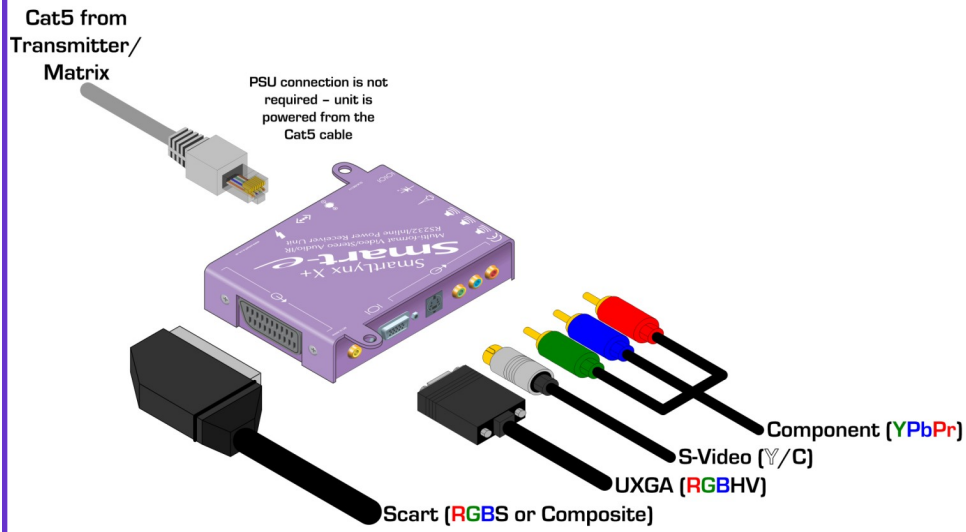
1. Connecting SLX-RX111 to the display device

1.1 Making sure that the Cat 5 cable is connected to the matrix output, connect the cable to the RJ45 socket on the receiver unit.

1.2 If the cable connection is correct the power LED on the front of the receiver should illuminate (power is sent up the Cat 5 cable).

1.3 Connect the display to relevant connector on the receiver (see diagram below) using the appropriate cable.

1.4 If RS232 control is required then connect to the display via the 3.5mm minijack on the receiver using a CAB-J19-1M.


Cat5 from Transmitter/ Matrix
PSU connection is not required – unit is powered from the Cat5 cable
Component (YPbPr)
S-Video (Y/C)
UXGA (RGBHV)
Scart (RGBS or Composite)

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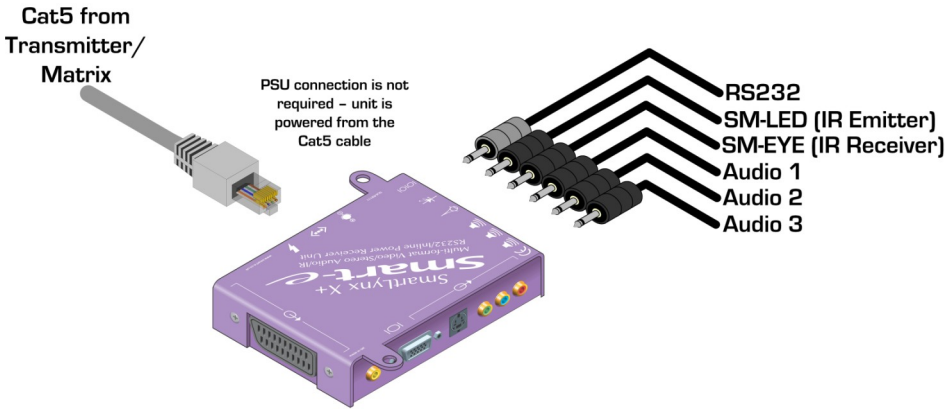
2. Connecting SLX-RX111 to audio and Infra-Red control

2.1 Connect the speakers or audio input on the display to the audio output on the receiver, using a 3.5mm jack plug.

2.2 If using the receiver to transmit Infra-Red signals back down the cable to the transmitter unit then connect an 'eye' to the jack position as shown in the diagram below.

2.3 If using the receiver to transmit Infra-Red signals up to the display from the transmitter unit then connect a 'LED' to the jack position as shown in the diagram below.

Please note: connecting the IR 'eye' will prevent the return RS232 path from the display



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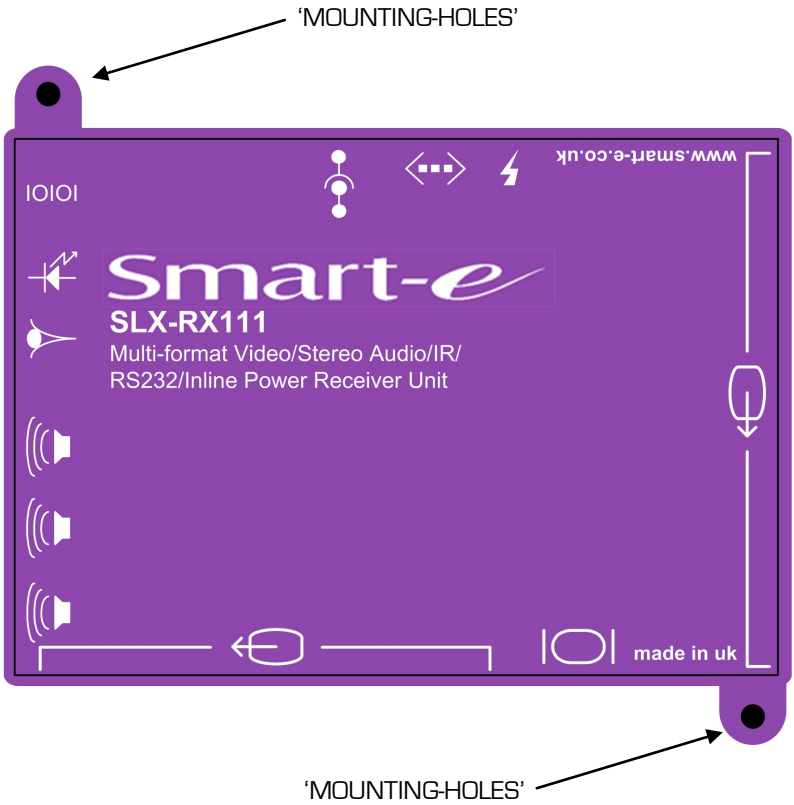
3. Mounting the Receiver

The receiver unit can compensate for cable losses over a length of 20-100m, and for mounting purposes the unit is provided with two 'mounting-hole' points for fixing to the wall or screen (See diagram below). Simply hold receiver in place, mark position of holes and set screws in these locations.

NB. Always use screws with heads larger than the holes.



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SLX-RX211

The SLX-RX211 allows for the Long Range reception of UXGA, RGsB, RGBS, YPrPb, YUV, Y/C, CVBS, Stereo Audio, and Infra-Red or RS232 control signals when broadcasted along a single Cat5 UTP cable from a Smart-e transmitter or matrix.

The signals are received along the Cat5 from the transmitter and then distributed to the display and control equipment via the appropriate connection and to speakers via a 3.5 mm mini jack.

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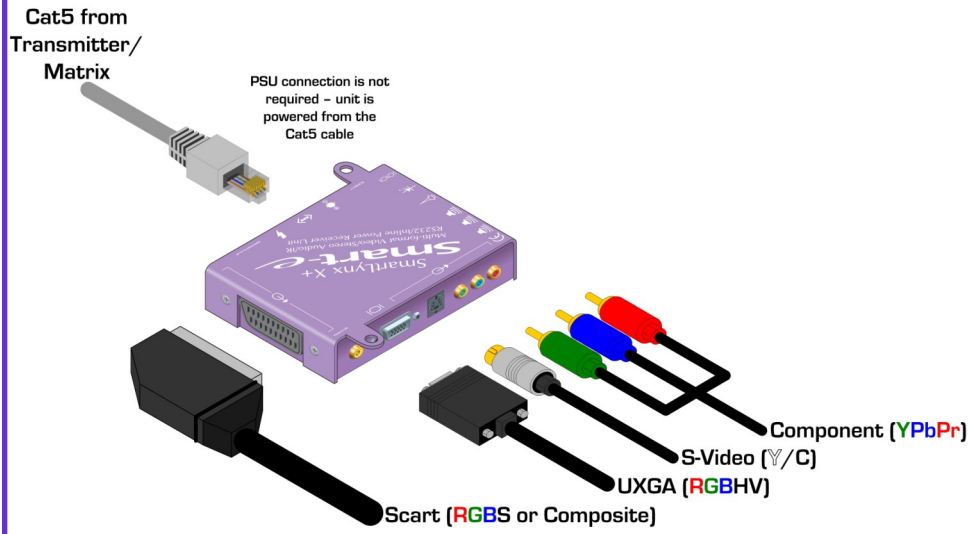
1. Connecting SLX-RX211 to the display device

1.1 Making sure that the Cat 5 cable is connected to the matrix output, connect the cable to the RJ45 socket on the receiver unit.

1.2 If the cable connection is correct the power LED on the front of the receiver should illuminate (power is sent up the Cat 5 cable).

1.3 Connect the display to relevant connector on the receiver (see diagram below) using the appropriate cable.

1.4 If RS232 control is required then connect to the display via the 3.5mm minijack on the receiver using a CAB-J19-1M.


Cat5 from Transmitter/ Matrix
PSU connection is not required – unit is powered from the Cat5 cable
Component (YPbPr)
S-Video (Y/C)
UXGA (RGBHV)
Scart (RGBS or Composite)

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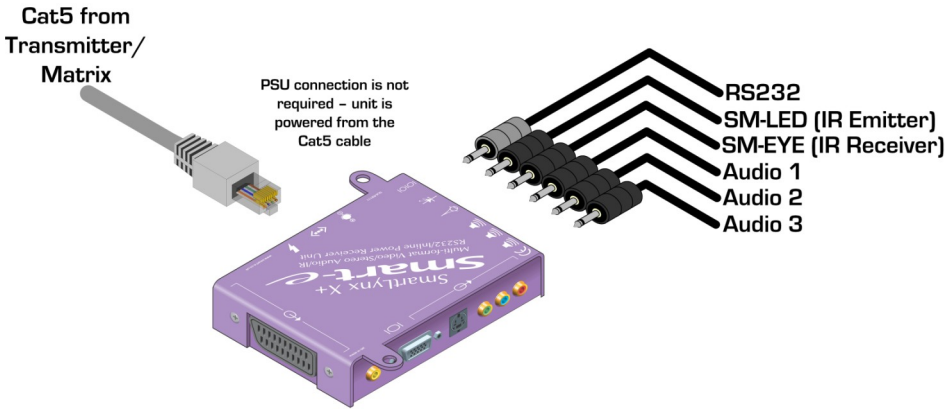
2. Connecting SLX-RX211 to audio and Infra-Red control

2.1 Connect the speakers or audio input on the display to the audio output on the receiver, using a 3.5mm jack plug.

2.2 If using the receiver to transmit Infra-Red signals back down the cable to the transmitter unit then connect an 'eye' to the jack position as shown in the diagram below.

2.3 If using the receiver to transmit Infra-Red signals up to the display from the transmitter unit then connect a 'LED' to the jack position as shown in the diagram below.

Please note: connecting the IR 'eye' will prevent the return RS232 path from the display



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3. Adjusting Cable Compensation (Equalization) and Contrast Control

3.1 To adjust equalization the 'pot' labelled as Cable Compensation may be rotated clockwise: start by turning the 'pot' completely ANTI-clockwise and then slowly turn clockwise until equalization is correct. As cable length increases the 'pot' will need to be turned further clockwise.

3.2 The Contrast Control adjustment (Gain) is factory set at 0dB. Leave at preset unless you require to compensate for another piece of equipment in the chain i.e. old display which has lost brightness.

4. Skew error compensation

The SLX-RX211 has built-in delay lines to compensate for skew errors in longer cable lengths of Cat6 cable. Each video colour can be delayed up to 62ns which can be adjusted and set using the 3 buttons on the base of the unit.

4.1 Press buttons 'INC' and 'DEC' together to enter the setting mode.

4.2 Press button 'SET' to select the colour to be delayed i.e. red/green/blue (indicated by the respective LED).

4.3 Choose the most delayed colour (the one which is to the right of the other colours) and delay the other 2 colours to that position

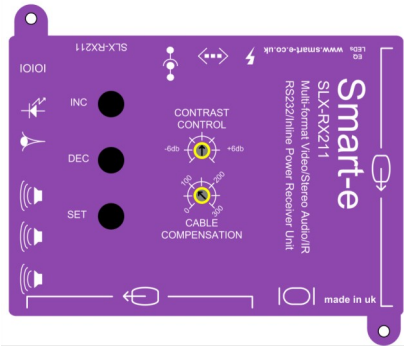
4.4 Press the 'INC' button to increase and 'DEC' button to decrease the delay.

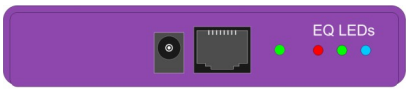
4.5 Press buttons 'INC' and 'DEC' together to save the settings.

4.6 Pressing buttons 'DEC' and 'SET' together will reset all delays to zero.

Note

Although all 3 colours can be delayed it is usually only necessary to delay 2 of the colours to achieve skew error compensation.





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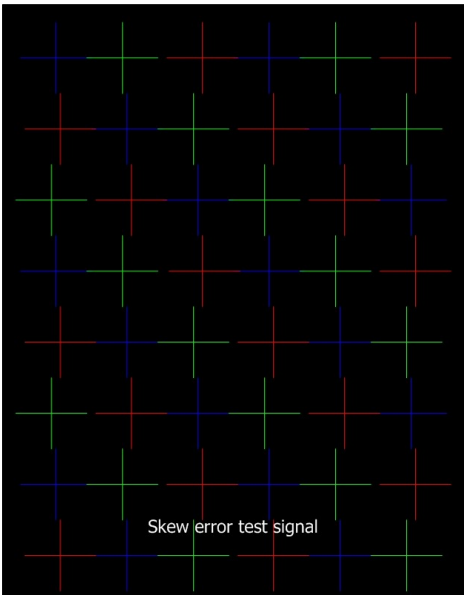
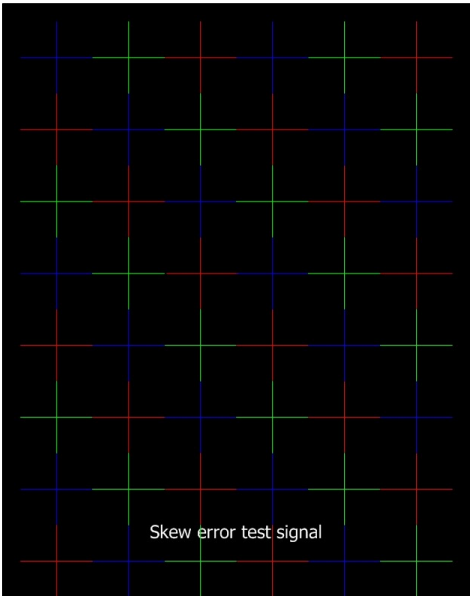
4a. Incorrect Skew adjustment.

In this example the Red signal is most delayed and the Green signal the least delayed.



4b. Correct Skew adjustment.

In this example colours are in alignment and hence correctly equalized.



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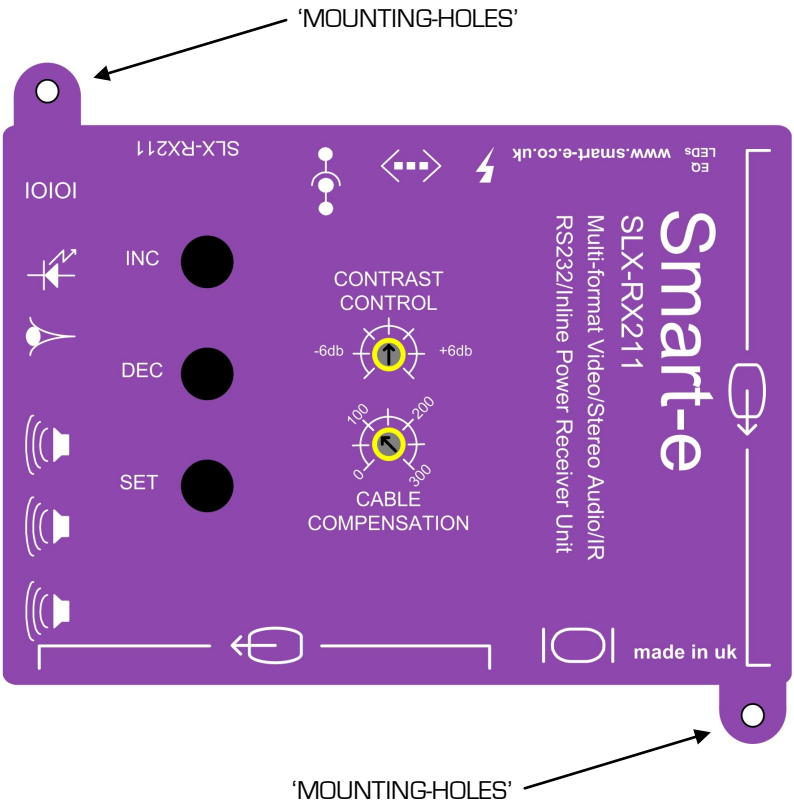
5. Mounting the Receiver

The receiver unit can compensate for cable losses over a length of 20-100m, and for mounting purposes the unit is provided with two 'mounting-hole' points for fixing to the wall or screen (See diagram below). Simply hold receiver in place, mark position of holes and set screws in these locations.

NB. Always use screws with heads larger than the holes.



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SLX-RX212/D

The SLX-RX212 allows for the Long Range reception of UXGA, RGsB, YPrPb, YUV, Y/C, CVBS, Stereo Audio, and Infra-Red or RS232 control signals when broadcasted along a single Cat5 UTP cable from a Smart-e transmitter or matrix.

The signals are received along the Cat5 from the transmitter and then distributed as a Dual-Screen output to the displays and control equipment via the appropriate connections, and to speakers via a 3.5 mm mini jack.

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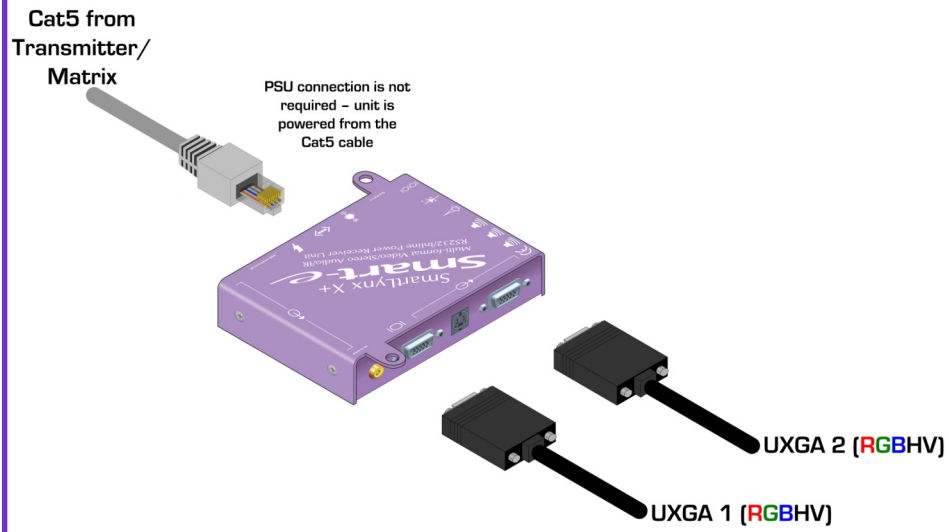
1. Connecting SLX-RX212 to the display device

1.1 Making sure that the Cat 5 cable is connected to the matrix output, connect the cable to the RJ45 socket on the receiver unit.

1.2 If the cable connection is correct the power LED on the front of the receiver should illuminate (power is sent up the Cat 5 cable).

1.3 Connect the displays to the relevant connectors on the receiver (see diagram below) using the appropriate cable.

1.4 If RS232 control is required then connect to the display via the 3.5mm minijack on the receiver using a CAB-J19-1M.


Cat5 from Transmitter/ Matrix
PSU connection is not required – unit is powered from the Cat5 cable
UXGA 2 (RGBHV)
UXGA 1 (RGBHV)

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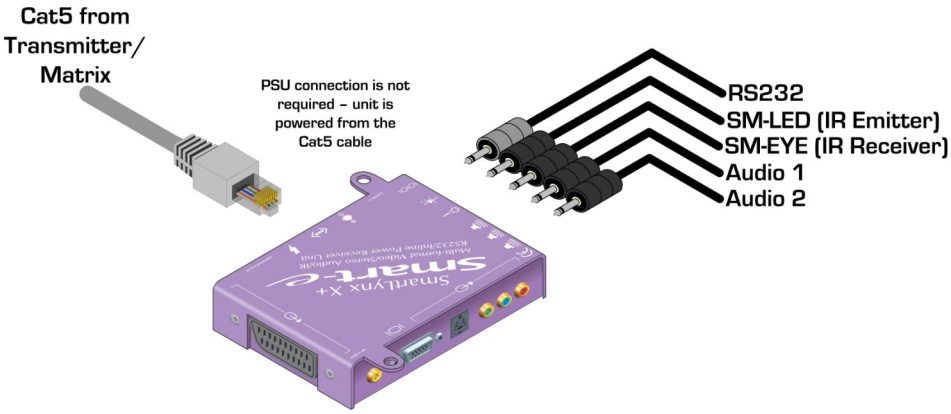
2. Connecting SLX-RX212 to audio and Infra-Red control

2.1 Connect the speakers or audio inputs on the displays to the audio outputs on the receiver, using 3.5mm jack plugs.

2.2 If using the receiver to transmit Infra-Red signals back down the cable to the transmitter unit then connect an 'eye' to the jack position as shown in the diagram below.

2.3 If using the receiver to transmit Infra-Red signals up to the display from the transmitter unit then connect a 'LED' to the jack position as shown in the diagram below.

Please note: connecting the IR 'eye' will prevent the return RS232 path from the display


Cat5 from Transmitter/ Matrix
PSU connection is not required – unit is powered from the Cat5 cable
RS232
SM-LED (IR Emitter)
SM-EYE (IR Receiver)
Audio 1
Audio 2

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3. Adjusting Equalisation and Contrast

3.1 To adjust equalization the 'pot' labelled as EQ may be rotated clockwise: start by turning the 'pot' completely ANTI-clockwise and then slowly turn clockwise until equalization is correct. As cable length increases the 'pot' will need to be turned further clockwise.

3.2 To adjust contrast (Gain) as with equalization begin by turning the 'pot' completely ANTI-clockwise and slowly turn the 'pot' clockwise until the desired image contrast (Gain) is displayed.

4. Skew error compensation

The SLX-RX212 has built-in delay lines to compensate for skew error in longer cable lengths. Each video colour can be delayed up to 62ns which can be adjusted and set using the 3 buttons on the base of the unit.

4.1 Press buttons 'INC' and 'DEC' together to enter the setting mode.

4.2 Press button 'SET' to select the colour to be delayed i.e. red/green/blue.

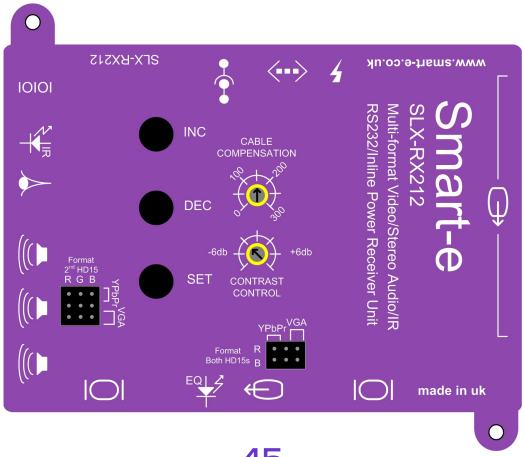
4.3 Press the 'INC' button to increase and 'DEC' button to decrease the delay.

4.4 Press buttons 'INC' and 'DEC' together to save the settings.

4.5 Pressing buttons 'DEC' and 'SET' together will reset all delays to zero.

Note

Although all 3 colours can be delayed it is usually only necessary to delay 2 of the colours to achieve skew error compensation.



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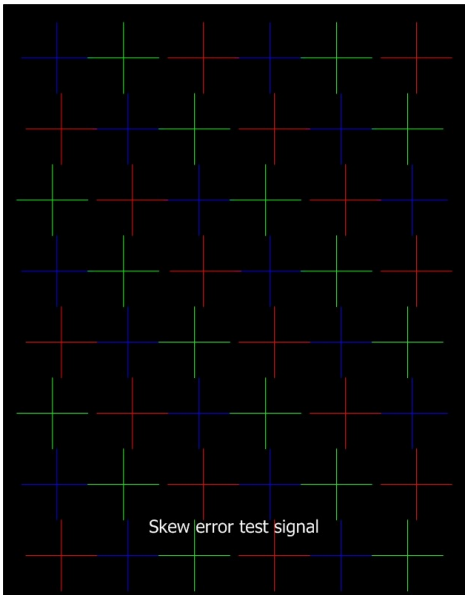
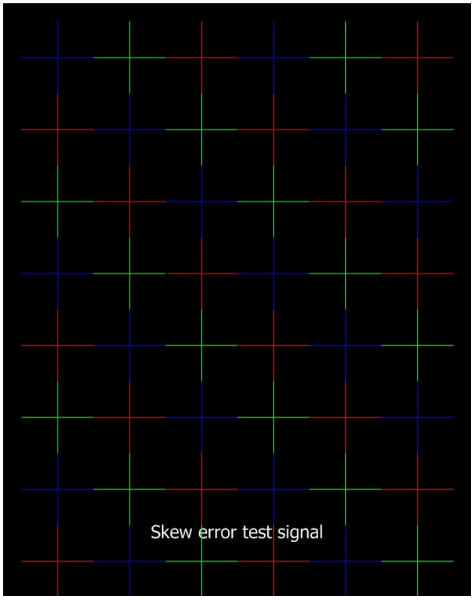
4a. Incorrect Skew adjustment.

In this example the Green is under equalized and the Red is slightly over equalized.



4b. Correct Skew adjustment.

In this example colours are in alignment and hence correctly equalized.



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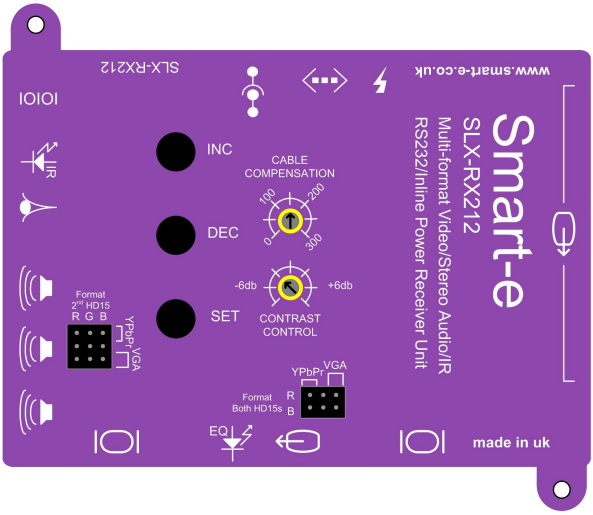
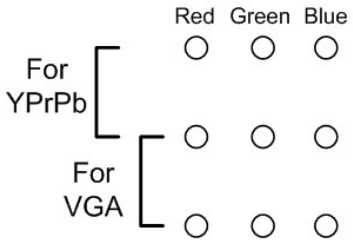
5. Setting the jumpers on the Receiver

5.1 On the SLX-RX212 you are able to select the format of video outputted by the HD15s by altering the jumpers on the base of the unit shown in the diagram below.

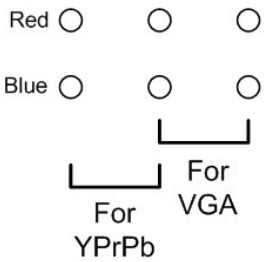


Viewed from underside of board [where the pots reside]

Video on Second HD15:



Video on Both HD15s:



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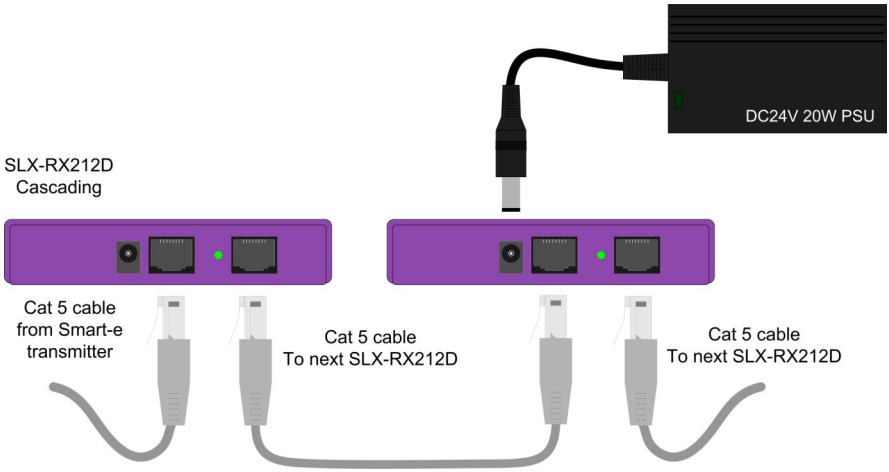
6. How to Cascade the SLX-RX212D

6.1 As well as having all the functions of the regular SLX-RX212, the SXL-RX212D also has the ability to be cascaded for up to 5 units.

6.2 In order to cascade the SLX-RX212Ds Cat5 cable should be used to join together the supplementary units, with the Cat5 output on the first unit to be joined to the Cat5 input on the second unit, etc. (See diagram below).

6.3 All additional SLX-RX212Ds connected after the initial unit, MUST have their own power supply units attached.



6.4 All SLX-RX212Ds then connect to display and audio equipment as shown for the standard unit on the previous pages.

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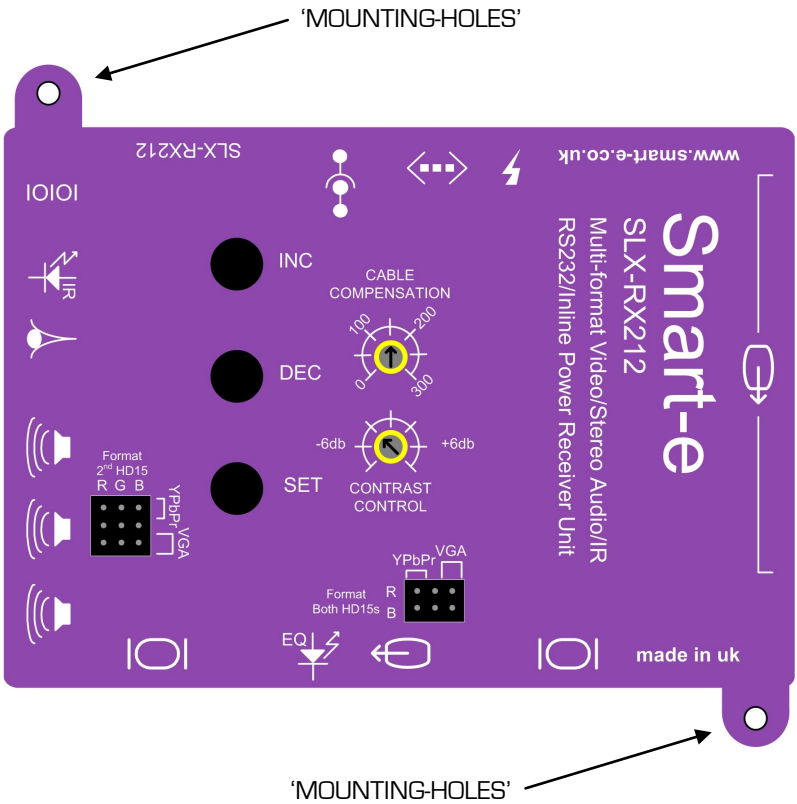
7. Mounting the Receiver

The receiver unit can compensate for cable losses over a length of 20-100m, and for mounting purposes the unit is provided with two 'mounting-hole' points for fixing to the wall or screen (See diagram below). Simply hold receiver in place, mark position of holes and set screws in these locations.

NB. Always use screws with heads larger than the holes.



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SLX-RX100

Video Input	
Signal Type - Connector	UXGA/YUV/YPbPr/YC/CVBS - RJ45
Bandwidth	400MHz
Impedance	75 Ohm
Audio Input	
Signal Type	Stereo Audio
Bandwidth	20kHz, 0dB
Impedance	10k Ohm
Connector	RJ45
Video Output	
Signal Type - Connector	UXGA/YUV/YPbPr/YC/CVBS - HD15
Bandwidth	400MHz
Impedance	75 Ohm
Audio Output	
Signal Type	Stereo Audio
Bandwidth	20kHz, 0dB
Impedance	100 Ohm
Connector	3 x 3.5mm mini-jacks, Female
Power	
Requirement - Connector	24VDC 500mA - 5mm x 2.1mm
Dimensions	
Size	90 x 80 x 21 mm
Weight	0.2kg

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Technical Information

SLX-RX111

Video Input

Signal Type - Connector..... UXGA/RGBS/YUV/YPbPr/YC/CVBS - RJ45
Bandwidth..... 400MHz
Impedance..... 75 Ohm

Audio Input

Signal Type..... Stereo Audio
Bandwidth..... 20kHz, 0dB
Impedance..... 10k Ohm
Connector..... RJ45

Video Output

Signal Type - Connector..... UXGA-HD15 / RGBS / YUV-3xRCA / YC-4pin minidin / CVBS
Bandwidth..... 400MHz
Impedance..... 75 Ohm

Audio Output

Signal Type..... Stereo Audio
Bandwidth..... 20kHz, 0dB
Impedance..... 100 Ohm
Connector..... 3 x 3.5mm mini-jacks, Female

IR Input

Signal Type..... 30-500kHz modulated IR
Connector..... 3.5mm mini-jack, Female

IR Output

Signal Type..... 30-500kHz modulated IR
Connector..... RJ45

RS232/422 Input

Signal Type..... RS232 up to 115kbaud, full duplex tx, rx. RS422 9600baud
Connector..... RJ45

RS232/422 Output

Signal Type..... RS232 up to 115kbaud, full duplex tx, rx. RS422 9600baud
Connector..... 3.5mm mini-jack, Female

Power

Requirement - Connector..... 24VDC 500mA - 5mm x 2.1mm

Dimensions

Size..... 120 x 94 x 23 mm
Weight..... 0.2kg

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Technical Information

SLX-RX211

Video Input

Signal Type - Connector..... UXGA/RGBS/YUV/YPbPr/YC/CVBS - RJ45
Bandwidth..... 400MHz
Impedance..... 75 Ohm

Audio Input

Signal Type..... Stereo Audio
Bandwidth..... 20kHz, 0dB
Impedance..... 10k Ohm
Connector..... RJ45

Video Output

Signal Type - Connector..... UXGA-HD15 / RGBS / YUV-3xRCA / YC-4pin minidin / CVBS
Bandwidth..... 400MHz
Impedance..... 75 Ohm

Audio Output

Signal Type..... Stereo Audio
Bandwidth..... 20kHz, 0dB
Impedance..... 100 Ohm
Connector..... 3 x 3.5mm mini-jacks, Female

IR Input

Signal Type..... 30-500kHz modulated IR
Connector..... 3.5mm mini-jack, Female

IR Output

Signal Type..... 30-500kHz modulated IR
Connector..... RJ45

RS232/422 Input

Signal Type..... RS232 up to 115kbaud, full duplex tx, rx. RS422 9600baud
Connector..... RJ45

RS232/422 Output

Signal Type..... RS232 up to 115kbaud, full duplex tx, rx. RS422 9600baud
Connector..... 3.5mm mini-jack, Female

Power

Requirement - Connector..... 24VDC 500mA - 5mm x 2.1mm

Dimensions

Size..... 120 x 94 x 23 mm
Weight..... 0.2kg

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Technical Information

SLX-RX212/D

Video Input	
Signal Type - Connector	UXGA/YUV/YPbPr/YC/CVBS - RJ45
Bandwidth	400MHz
Impedance	75 Ohm
Audio Input	
Signal Type	Stereo Audio
Bandwidth	20kHz, 0dB
Impedance	10k Ohm
Connector	RJ45
Video Output	
Signal Type - Connector	UXGA/YUV/YPbPr/YC/CVBS - 2 x HD15 (+RJ45 on SLX-RX212D)
Bandwidth	400MHz
Impedance	75 Ohm
Audio Output	
Signal Type	Stereo Audio
Bandwidth	20kHz, 0dB
Impedance	100 Ohm
Connector	3 x 3.5mm mini-jacks, Female (+RJ45 on SLX-RX212D)
IR Input	
Signal Type	30-500kHz modulated IR
Connector	3.5mm mini-jack, Female
IR Output	
Signal Type	30-500kHz modulated IR
Connector	3.5mm mini-jack, Female
RS232 Input	
Signal Type	RS232 up to 115kbaud, full duplex tx, rx. RS422 9600baud
Connector	3.5mm mini-jack, Female
RS232 Output	
Signal Type	RS232 up to 115kbaud, full duplex tx, rx. RS422 9600baud
Connector	3.5mm mini-jack, Female
Power	
Requirement - Connector	24VDC 500mA - 5mm x 2.1mm
Dimensions	
Size	120 x 94 x 26 mm
Weight	0.2kg

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Troubleshooting

No video?

1) Are the green LEDs on both the transmitter and receiver units? If not check that the 24V power supply (PSU) is connected and the LED on the PSU is lit. Check the cable compensation dials on the underside of the unit. Over compensation of the Red and Blue channels can cause the display to misinterpret the sync pulses and not display an image.
2) Is the video source a laptop or floating? (a floating source is one which has no earth reference i.e. uses a double insulated PSU or a figure 8 mains cable). If so make sure the PSU is an earthed unit when not using the PSU supplied.
3) Is the audio input level too high? The audio level should be set to line level (0dB or 700mV peak to peak) to prevent interference.

Display has problems syncing?

1) Is the audio input level too high? The audio level should be set to line level (0dB or 700mV peak to peak) to prevent interference.

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Appendix

Limited Warranty Statement

A. Extent of limited warranty

1. Smart-e (UK) Ltd warrants to the end-user customers that Smart-e product specified above will be free from defects in materials and workmanship for the duration of 3 years, which duration begins on the date of purchase by the customer. Customer is responsible for maintaining proof of date of purchase.
2. Smart-e warranty covers only those defects which arise as a result of normal use of the product, and do not apply to any:

   a. Improper or inadequate maintenance or modifications

   b. Operations outside product specifications

   c. Mechanical abuse and exposure to severe conditions
3. If Smart-e receives during applicable warranty period notice of defect, Smart-e will at its discretion replace or repair defective product . If Smart-e is unable to replace or repair defective product covered by the Smart-e warranty within reasonable period of time Smart-e shall refund the cost of the product.
4. Smart-e shall have no obligation to repair, replace or refund unit until customer returns defective product to Smart-e.
5. Any replacement product could be new or like new, provided that it has functionality at least equal to that of the product being replaced.
6. Smart-e warranty is valid in any country where the covered product is distributed by Smart-e.

B. Limitations of warranty

TO THE EXTENT ALLOWED BY LOCAL LAW, NEITHER SMART-E NOT ITS THIRD PARTY SUPPLIERS MAKE ANY OTHER WARRANTY OR CONDITION OF ANY KIND WHETHER EXPRESSED OR IMPLIED , WITH RESPECT TO THE SMART-E PRODUCT , AND SPECIFICALLY DISCLAIM IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY , AND FITNESS FOR A PARTICULAR PURPOSE

C. Limitations of liability

To the extent allowed by local law the remedies provided in this warranty statement are the customers sole and exclusive remedies

TO THE EXTENT ALLOWED BY LOCAL LAW , EXCEPT FOR THE OBLIGATIONS SPECIFICALLY SET FORTH IN THIS WARRANTY STATEMENT , IN NO EVENT WILL SMART-E OR ITS THIRD PARTY SUPPLIERS BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES WHETHER BASED ON CONTRACT , TORT OR ANY OTHER LEGAL THEORY AND WHETHER ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

D. Local law

To the extent that this warranty statement is inconsistent with local law, this warranty statement shall be considered modified to be consistent with such law

Partial Product List

Product Range	Product Code	Description
SmartLynx - X	SLX-100 SLX-400	Transmitter and Receiver Pair Transmitter and Receiver Pair
SmartLynx-X +	SLX-111 SLX-211 SLX-212	Transmitter and Receiver Pair with RS232/IR Transmitter and Receiver Pair with RS232/IR Dual Transmitter and Receiver Pair with RS232/IR
SmartCast - X	SCX-TX600	One to Six Transmitter Unit
SmartCast-X+	SCX-TX550	One to Five Transmitter Unit with RS232/IR
SmartCast System	TUSC-1042 SCX-TX120E SCX-TX550E SLX-RX100ES	SmartCast Eurocard Rack (Up to 16 cards) Dual Screen Transmitter Eurocard One to Five Transmitter Eurocard with RS232/IR Eurocard Receiver for UGXA,YUV,Y/C, and Audio
SmartNet-X+ Matrix Switches	SNX-8x8+ SNX-16x16+	8 x 8 Distribution Matrix 16 x 16 Distribution Matrix (Up to 256 x 256)
SmartNet-X+ Matrix Bundles	SNX-8X8IRP SNX-8X8RSP	Complete Infrared Controlled 8X8 Matrix Package Complete RS232 Controlled 8X8 Matrix Package

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